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THE LINK BETWEEN LOW SOCIO-ECONOMIC STATUS AND CARDIOVASCULAR DISEASES

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Introduction. People with low socio-economic status are more exposed to the complications of cardiovascular diseases. The purpose of the study was to evaluate the burden of cardiovascular diseases and risk factors in an adult population with low socio-economic level from rural area.
Material and methods. The study included 305 patients from rural areas around Bucharest, which have been consulted free of charge by a group of volunteer physicians of the Romanian Orthodox Church, between September-December 2015.
Results. The median age of the patients was 73.4 ± 9.7 years old. The distribution by sex was: 63.27% women and 36.73% men. The distribution of cardiovascular diseases was: arterial hypertension 89.50%, coronary heart disease 53.11%, left ventricular hypertrophy (on ECG) 46.55%, chronic heart failure 30.81%, obesity 25.57%, atrial fibrillation 23.93%, supraventricular extrasystoles 22.29%, ventricular extrasystoles 17.04%, right bundle branch block 16.72%, left bundle branch block 9.50%. From the 273 hypertensive patients, only 27 had a low sodium diet. 47.25% of hypertensive patients were adherent to antihypertensive treatment. Only 41 of the 73 patients with atrial fibrillation were on anticoagulant treatment (with antivitamin K); from these 41 anticoagulated patients, only 13 have their INR checked in the last 30 days.
Conclusions. The large majority of the patients from our study had arterial hypertension. Almost 1/3 of the patients had chronic heart failure. More than half of the patients had coronary heart disease. Low socioeconomic status is a heart disease risk factor on its own and need to be regarded as such by the medical community. These patients have a reduced compliance and adherence to diet and medical treatment.

Key words: socio-economic status, cardiovascular diseases.

INTRODUCTION

Cardiovascular diseases are the leading cause of death in European countries. Despite the progresses in prevention, the burden of cardiovascular diseases remains high and varies between countries. The socio-economic status is a complex term, usually taking into acount a combination of income, level of education, age, sex, ethnicity and marital status[1]. The analyses of the relationship between heakth status and economy have shown that health is very unevenly distributed across society and significant differences may exist between people of different socio-economic status. Socio-economic status may be a predictor of cardiovascular diseases and death. People with low socio-economic status are more exposed to the complications of cardiovascular diseases. The purpose of the study was to evaluate the burden of cardiovascular diseases and risk factors in an adult population with low socio-economic level from rural areas.

MATERIALS AND METHODS

The study included 305 patients from rural areas around the capital of the country, Bucharest. These patients were evaluated in a pilot project and have

been consulted free of charge by a group of volunteer physicians of the Romanian Orthodox Church, between September-December 2015. The project was based on a protocol signed by the Romanian Orthodox Church and the Ministry of Health on September 2015. The patients were informed about the project by the local priest and were advised to present for medical examination. All the patients included in the study had a monthly income smaller than the average gross wage in the Romanian economy (2298 RON in 2014). In all the patients medical history was taken and clinical exam was performed, including blood pressure measurement. 12 leads ECG was done in all patients.

RESULTS

The mean age of the patients was 73.4 ± ± 9.7 years old. The distribution by sex was: 63.27% women and 36.73% men (Fig. 1). Women were older than men.

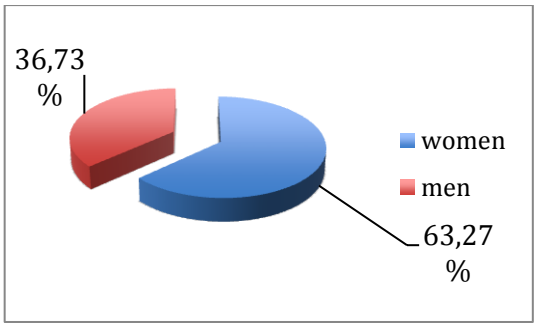

Fig. 1. The distribution by sex in the group of study.

The distribution of the main cardiovascular risk factors and cardiovascular diseases in the group of study was: arterial hypertension 89.50%, coronary heart disease 53.11%, left ventricular hypertrophy (on electrocardiogram) 46.55%, chronic heart failure 30.81%, obesity 25.57%, atrial fibrillation 23.93%, supraventricular extrasystoles 22.29%, ventricular extrasystoles 17.04%, right bundle branch block 16.72%, left bundle branch block 9.50% (Fig. 2).

Because echocardiography was not available, the cardiac valves could not be assessed. From the 273 hypertensive patients, only 27 had a low sodium diet (Fig. 3).

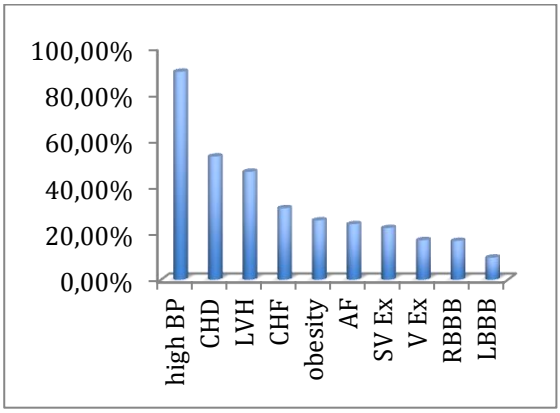

Fig. 2. The distribution of the main cardiovascular risk factors and cardiovascular diseases in the group of study:
BP – blood pressure; CHD – coronary heart disease; LVH – left ventricular hypertrophy; AF – atrial fibrillation; SVEx – supraventricular extrasystoles; VEx – ventricular extrasystoles; RBBB – right bundle branch block;
LBBB – left bundle branch block.

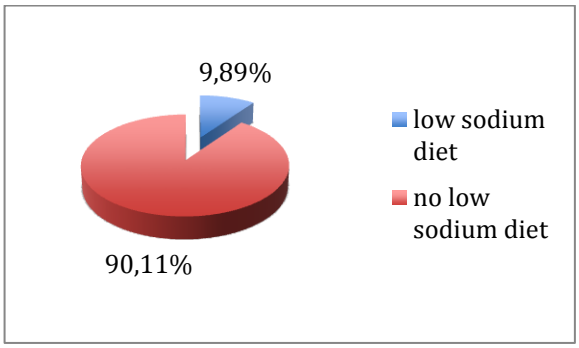

Fig. 3. Adherence of hypertensive patients to low sodium diet.

47.25% of hypertensive patients were adherent to antihypertensive treatment (Fig. 4).

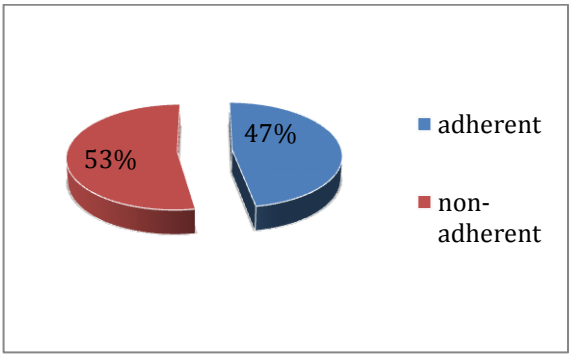

Fig. 4. Adherence to antihypertensive treatment.

Only 41 of the 73 patients with atrial fibrillation were on anticoagulant treatment (with antivitamin K) (Fig. 5); from these 41 anticoagulated patients, only 13 have their INR checked in the last 30 days.

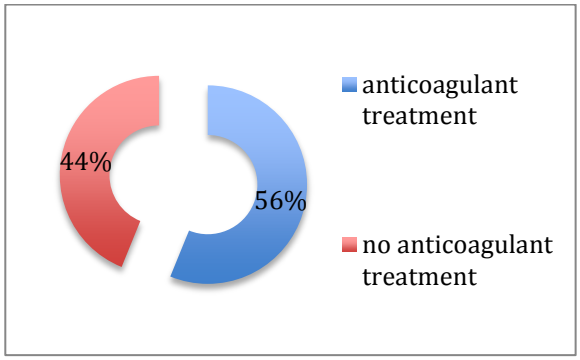

Fig. 5. Prophylaxis of thromboembolism with oral anticoagulants in patients with atrial fibrillation.

DISCUSSION

Low socio-economic status has been associated in epidemiologic studies with increased risk of cardiovascular diseases both in men and women[2-4]. Epidemiologic studies demonstrated that risk factors for cardiovascular diseases are also more prevalent in populations with lower socio-economic level[5,6]. Age, gender, lifestyle habits (alcohol, smoking, exercise) and access to medical care are potential cofounders or mediators of the low socio-economic status health risk. Socio-economic status is related to many aspects of daily life, stresses and strains, access to and use of medical care, including preventive measures, diagnostic and therapeutic services. There are two major pathways linking socio-economic status and cardiovascular diseases: negative patterns of established major lifestyle and pathologic risk factors (smoking, sedentary lifestyle, adverse diet, high serum cholesterol, high blood pressure, obesity and diabetes) in individuals with lower socio-economic status, and a less favorable pattern of psychosocial factors such as depression, social isolation, low social support, powerlessness, unemployment in low socio-economic level individuals. People with low socio-economic status live in poor physical and social environments that can favor health-damaging exposures. The poor economic resources associated with low socio-economic status may limit the access to healthcare services and nutritious foods. People with low socio-economic status which live in rural areas tend to live more isolated, due to insufficient infrastructure; the access to laboratory investigations is therefore limited.

In developed countries, there is a declining trend in cardiovascular diseases more pronounced among individuals from higher socio-economic groups[7-10]. The differences in the occurrence of cardiovascular diseases between higher and lower socio-economic groups is widening[7-10]. Preventive measures contributing to the decline in cardiovascular diseases might have had a bigger impact on individuals from higher socio-economic groups and resulted in widening the health disparities in industrialized societies[11,12].

The patients included in our study were old. Women represented the majority group. The main cardiovascular disease in our study was arterial hypertension; this finding may be related also to the old age of the patients. Less than 10% of hypertensive patients were adherent to a low sodium diet. This finding, along with the low adherence to antihypertensive treatment, may explain the high values of blood pressure encountered in these patients and the high frequency of left ventricular hypertrophy, as a complication of arterial hypertension. Anti-coagulation therapy in patients with atrial fibrillation, in order to prevent thromboembolism, was not used in all patients. The main reasons were the impossibility to control the INR (International Normalized Ratio) and the lack of medical education about the risks of atrial fibrillation. None of the patients with atrial fibrillation was on treatment with new oral anticoagulants. Lack of medical education seems to be an important risk factor for cardiovascular diseases. One study has found that educational level was the only measure of socioeconomic status significantly associated with cardiovascular risk factors in an American Population[13]. Another study from Finland concluded that although education and occupation had the strongest associations with cardiovascular risk factors, education was most important among men, while income was more important among women[14].

CONCLUSIONS

The large majority of the patients from our study had arterial hypertension. The compliance to low sodium diet and medical treatment was very low, partly due to low access to medical care. Almost 1/3 of the patients had chronic heart failure. More than half of the patients had coronary heart disease. Low socio-economic status is a heart disease risk factor on its own and need to be regarded as such by the medical community. These patients have a reduced compliance and adherence to diet and medical

treatment. Interventions to reduce social inequalities may have an important effect on cardiovascular outcomes.

ACKNOWLEDGEMENTS

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